

**REMARKS**

The Office Action dated February 7, 2006 has been carefully reviewed and the following remarks have been made in consequence thereof.

Claims 1-3, 6, 7, 9-13, 16, 17, 19-24, 26, 28, and 29 are pending in this application. Claims 1-3, 6, 7, 9-13, 16, 17, 19-24, 26, 28, and 29 stand rejected.

In accordance with 37 C.F.R. 1.136(a), a one-month extension of time is submitted herewith to extend the due date of the response to the Office Action dated February 7, 2006, for the above-identified patent application from May 7, 2006, through and including June 7, 2006. Authorization to charge a deposit account in the amount of \$120.00 to cover this extension of time request also is submitted herewith.

The rejection of Claims 1, 3, 6, 7, 9, and 10 under 35 U.S.C. § 102(b) as being anticipated by Berkcan et al. (U.S. Patent No. 5,587,651) ("Berkcan '651") is respectfully traversed.

Berkcan '651 describes a current sensor (10) including a first and second conductor plate (12 and 16) that are shaped to form respective magnetic field constituents around first and second conductor plates (12 and 16). A passage (24) is defined between the first and second conductor plates. A third conductor plate (18) forms a respective magnetic field around third conductor plate (18). Current sensor (10) also includes sensor coils (50) for sensing or detecting changes in magnetic flux within a sense region.

Claim 1 recites a current sensor for an apparatus, the current sensor comprising "a conductor comprising an aperture therethrough and a plurality of Hall effect devices inserted at least partially within said aperture, said conductor is configured to generate a magnetic field having a pre-determined shape, each said Hall effect device configured to detect said pre-determined shape and generate an output, and each said Hall effect device configured to be insensitive to magnetic fields having shapes other than the pre-determined shape."

Berkcan '651 does not describe nor suggest a current sensor as recited in Claim 1. Specifically, Berkcan '651 does not describe nor suggest a current sensor including a conductor including an aperture therethrough and a plurality of Hall effect devices inserted at least partially within the aperture such that each Hall effect device is configured to be

insensitive to magnetic fields having shapes other than the pre-determined shape. Rather, and in contrast to the recitations of Claim 1, Berkcan '651 describes a current sensor including first, second, and third conductor plates wherein a passage is defined between the first and second conductor plates, rather than an aperture through the conductor. The aperture described by the Applicants is defined within the current conductor and extends therethrough. The passage described by Berkcan '651 is defined between conductor plates and clearly is not defined within the conductor. Berkcan '651 also describes the current sensor including sensor coils for sensing or detecting changes in magnetic flux within a sense region. Applicants traverse the assertion in the Office Action that sensor coils can fairly be equated with Hall effect devices.

Additionally, Applicants have not been provided with any reference that describes or suggests a current sensor having a plurality of Hall effect devices inserted at least partially within an aperture wherein each Hall effect device is configured to detect a pre-determined shape and generate an output, and each Hall effect device is configured to be insensitive to magnetic fields having shapes other than the pre-determined shape.

For at least the reasons set forth above, Claim 1 is submitted to be patentable over Berkcan '651.

Claims 3, 6, 7, and 9 depend from independent Claim 1. When the recitations of Claims 3, 6, 7, and 9 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 3, 6, 7, and 9 likewise are patentable over Berkcan '651.

Claim 10 recites a current sensor for an apparatus comprising "a conductor comprising an aperture therethrough and a plurality of Hall effect devices inserted at least partially within said aperture, said conductor is configured to generate a magnetic field comprising at least a first magnetic field component having a first direction and a second magnetic field component having a second direction different from said first direction, and a pre-determined shape, each said Hall effect device configured to detect said pre-determined shape and generate an output, and each said Hall effect device configured to be insensitive to magnetic fields having spatial dependencies other than a spatial dependence defined by the pre-determined shape."

Berkcan '651 does not describe nor suggest a current sensor as recited in Claim 10. Specifically, Berkcan '651 does not describe nor suggest a current sensor including a conductor including an aperture therethrough and a plurality of Hall effect devices inserted at least partially within the aperture and each Hall effect device is configured to be insensitive to magnetic fields having shapes other than the pre-determined shape. Rather, and in contrast to the recitations of Claim 10, Berkcan '651 describes a current sensor including first, second, and third conductor plates, rather than an aperture through the conductor. The aperture described by the Applicants is defined within the current conductor and extends therethrough. The passage described by Berkcan '651 is defined between conductor plates and clearly is not defined within the conductor. Berkcan '651 also describes the current sensor including sensor coils for sensing or detecting changes in magnetic flux within a sense region. Applicants traverse the assertion in the Office Action that sensor coils can fairly be equated with Hall effect devices.

For at least the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 1, 3, 6, 7, 9, and 10 be withdrawn.

The rejection of Claim 2 under 35 U.S.C. § 103(a) as being unpatentable over Berkcan '651 in view of Dames et al. ("Dames") (U.S. Patent 6,414,475) is respectfully traversed.

Berkcan '651 is described above. Dames describes a fiscal electricity meter (20) including a meter base (30), a mains input (21), a mains output (22), and a current sensor (1). The system includes a plurality of coils in current sensor (1). Sensing coils sense current flowing through conductors within the meter. Notably, at Col. 1, lines 27-30, Dames et al. recite that "[t]he use of a Hall sensor suffers from the disadvantage that Hall sensors can suffer from temperature dependence and are also relatively expensive."

Applicants respectfully submit that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Neither Berkcan '651 nor Dames, considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicants respectfully

submit that it would not be obvious to one skilled in the art to combine Berkcan '651 and Dames, because there is no motivation to combine the references suggested in the art. Additionally, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicants' own teaching. Rather, only the conclusory statement that "it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the current sensor of Berkcan '651 and use within the electricity meter of Dames et al for the purpose of sensing current in the power line" suggests combining the disclosures.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. *Ex parte Levengood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. *In re Vaeck*, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejection is based on a combination of teachings selected in an attempt to arrive at the claimed invention. Since there is no teaching nor suggestion in the cited art for the combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicants request that the Section 103 rejection be withdrawn.

In addition, as is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching,

suggestion, or incentive supporting the combination. Neither Berkcan '651 nor Dames, considered alone or in combination, describe or suggest a current sensor as recited in the claimed combination.

Moreover, and to the extent understood, neither Berkcan '651 nor Dames, considered alone or in combination, describe nor suggest the claimed invention. Claim 2 depends from independent Claim 1 which recites a current sensor for an apparatus, the current sensor comprising "a conductor comprising an aperture therethrough and a plurality of Hall effect devices inserted at least partially within said aperture, said conductor is configured to generate a magnetic field having a pre-determined shape, each said Hall effect device configured to detect said pre-determined shape and generate an output, and each said Hall effect device configured to be insensitive to magnetic fields having shapes other than the pre-determined shape."

As described above, Berkcan '651 does not describe nor suggest a current sensor as recited in Claim 1. Applicants submit that Dames does not make up for the deficiencies of Berkcan '651. Specifically, neither Berkcan '651 nor Dames, considered alone or in combination, describe nor suggest a conductor including an aperture therethrough and a plurality of Hall effect devices inserted at least partially within the aperture wherein each Hall effect device is configured to be insensitive to magnetic fields having shapes other than the pre-determined shape. Rather, Berkcan '651 describes a current sensor including first, second, and third conductor plates wherein a passage is defined between the first and second conductor plates and wherein the current sensor includes sensor coils for sensing or detecting changes in magnetic flux within a sense region, and Dames describes a fiscal electricity meter including a meter base, a mains input, a mains output, and a current sensor such that the current sensor includes a plurality of coils to sense current flowing through conductors within the meter.

Accordingly, Claim 1 is submitted to be patentable over Berkcan '651 in view of Dames.

When the recitations of Claim 2 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claim 2 likewise is patentable over Berkcan '651 in view of Dames.

For the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claim 2 be withdrawn.

The rejection of Claims 11-13, 16, 17, 19-24, 26, 28, and 29 under 35 U.S.C. § 103(a) as being unpatentable over Plis et al. (“Plis”) (U.S. Patent 5,854,995) in view of Berkcan ‘651 is respectfully traversed.

Berkcan ‘651 is described above. Plis describes a vector electricity meter. The meter includes a voltage sensor (110) and a current sensor (120) that sense voltage and current signals on a power line and input the sensed voltages and currents (315) into a converting means (320).

Applicants respectfully submit that the Section 103 rejection of the presently pending claims is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Neither Berkcan ‘651 nor Plis, considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicants respectfully submit that it would not be obvious to one skilled in the art to combine Berkcan ‘651 and Plis, because there is no motivation to combine the references suggested in the art. Additionally, the Examiner has not pointed to any prior art that teaches or suggests to combine the disclosures, other than Applicants’ own teaching. Rather, only the conclusory statement that “it would have been obvious to one having ordinary skill in the art at the time ...the invention was made to modify the current sensor within the electricity meter of Plis et al.” suggests combining the disclosures.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. *Ex parte Levengood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicants’ disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant’s disclosure. *In re Vaeck*, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejection is based on a combination of teachings selected in an attempt to arrive at the claimed invention. Since there is no teaching nor suggestion in the cited art for the combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicants request that the Section 103 rejection be withdrawn.

In addition, as is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Neither Berkcan '651 nor Plis, considered alone or in combination, describe or suggest a residential electricity meter as recited in Claim 11.

Moreover, and to the extent understood, neither Berkcan '651 nor Plis, considered alone or in combination, describe nor suggest the claimed invention. Specifically, Claim 11 recites a residential electricity meter including "a voltage sensor and a current sensor, said current sensor comprising a conductor comprising an aperture therethrough and a plurality of Hall effect devices inserted at least partially within said aperture, said conductor is configured to generate a magnetic field having a pre-determined shape, each said Hall effect device configured to detect said pre-determined shape and generate an output, and each said Hall effect device configured to be insensitive to magnetic fields having shapes other than the pre-determined shape."

Neither Plis nor Berkcan '651, considered alone or in combination, describe nor suggest a residential electricity meter as recited in Claim 11. Specifically, neither Plis nor Berkcan '651, considered alone or in combination, describe nor suggest a residential electricity meter including a voltage sensor and a current sensor, the current sensor including

a conductor including an aperture therethrough and a plurality of Hall effect devices inserted at least partially within the aperture wherein each Hall effect device is configured to be insensitive to magnetic fields having shapes other than the pre-determined shape. Rather, Berkcan '651 describes a current sensor including first, second, and third conductor plates wherein a passage is defined between the first and second conductor plates and wherein the current sensor includes sensor coils for sensing or detecting changes in magnetic flux within a sense region, and Plis describes a meter that includes a vector electricity meter including a voltage sensor and a current sensor that sense voltage and current signals on a power line and input the sensed voltages and currents into a converting means.

For the reasons set forth above, Claim 11 is submitted to be patentable over Plis et al. in view of Berkcan '651.

Claims 12, 13, 16, 17, and 19 depend from independent Claim 11. When the recitations of Claims 12, 13, 16, 17, and 19 are considered in combination with the recitations of Claim 11, Applicants submit that dependent Claims 12, 13, 16, 17, and 19 likewise are patentable over Plis in view of Berkcan '651.

Claim 20 recites a residential electricity meter comprising "a voltage sensor and a current sensor, said current sensor comprising a conductor comprising an aperture therethrough and a plurality of Hall effect devices inserted at least partially within said aperture, said conductor is configured to generate a magnetic field comprising at least a first magnetic field component having a first direction and a second magnetic field component having a second direction different from said first direction, and a pre-determined shape, each said Hall effect device configured to detect said pre-determined shape and generate an output, and each said Hall effect device configured to be insensitive to magnetic fields having spatial dependencies other than a spatial dependence defined by the pre-determined shape."

Neither Plis nor Berkcan '651, considered alone or in combination, describe nor suggest a residential electricity meter as recited in Claim 20. Specifically, neither Plis nor Berkcan '651, considered alone or in combination, describe nor suggest a residential electricity meter including a voltage sensor and a current sensor, the current sensor including a conductor including an aperture therethrough and a plurality of Hall effect devices inserted at least partially within the aperture wherein each Hall effect device is configured to be

insensitive to magnetic fields having spatial dependencies other than a spatial dependence defined by the pre-determined shape. Rather, in contrast to the present invention, Berkcan '651 describes a current sensor including first, second, and third conductor plates wherein a passage is defined between the first and second conductor plates and wherein the current sensor includes sensor coils for sensing or detecting changes in magnetic flux within a sense region, and Plis describes a meter that includes a vector electricity meter including a voltage sensor and a current sensor that sense voltage and current signals on a power line and input the sensed voltages and currents into a converting means.

For the reasons set forth above, Claim 20 is submitted to be patentable over Plis in view of Berkcan '651.

Claim 21 recites a method for sensing voltage and current in a residence, the method comprising "providing an electricity meter comprising: a voltage sensor; and a current sensor, wherein the current sensor comprises a conductor comprising an aperture therethrough and a plurality of Hall effect devices inserted at least partially within the aperture, wherein the conductor is configured to generate a magnetic field having a pre-determined shape, each Hall effect device is configured to detect the pre-determined shape and generate an output, and each said Hall effect device configured to be insensitive to magnetic fields having shapes other than the pre-determined shape."

Neither Plis nor Berkcan '651, considered alone or in combination, describe nor suggest a method for sensing voltage and current as recited in Claim 21. Specifically, neither Plis nor Berkcan '651, considered alone or in combination, describe nor suggest providing an electricity meter including a current sensor, where the current sensor includes a conductor including an aperture therethrough and a plurality of Hall effect devices inserted at least partially within the aperture wherein each Hall effect device is configured to be insensitive to magnetic fields having shapes other than the pre-determined shape. Rather, in contrast the present invention, Berkcan '651 describes a current sensor including first, second, and third conductor plates wherein a passage is defined between the first and second conductor plates and wherein the current sensor includes sensor coils for sensing or detecting changes in magnetic flux within a sense region, and Plis describes a meter that includes a vector electricity meter including a voltage sensor and a current sensor that sense voltage and

current signals on a power line and input the sensed voltages and currents into a converting means.

For the reasons set forth above, Claim 21 is submitted to be patentable over Plis in view of Berkcan '651.

Claims 22-24, 26, and 28 depend from independent Claim 21. When the recitations of Claims 22-24, 26, and 28 are considered in combination with the recitations of Claim 21, Applicants submit that dependent Claims 22-24, 26, and 28 likewise are patentable over Plis et al. in view of Berkcan '651.

Claim 29 recites a method for sensing voltage and current in a residence, the method comprising "providing a residential electricity meter comprising: a voltage sensor; and a current sensor, said current sensor comprising a conductor comprising an aperture therethrough and a plurality of Hall effect devices inserted at least partially within said aperture, said conductor is configured to generate a magnetic field comprising at least a first magnetic field component having a first direction and a second magnetic field component having a second direction different from said first direction, and a pre-determined shape, each said Hall effect device configured to detect said pre-determined shape and generate an output, and each said Hall effect device configured to be insensitive to magnetic fields having shapes other than the pre-determined shape."

Neither Plis nor Berkcan '651, considered alone or in combination, describe nor suggest a method for sensing voltage and current as recited in Claim 29. Specifically, neither Plis nor Berkcan '651, considered alone or in combination, describe nor suggest providing a residential electricity meter including a current sensor, the current sensor including a conductor including an aperture therethrough and a plurality of Hall effect devices inserted at least partially within the aperture wherein each Hall effect device is configured to be insensitive to magnetic fields having shapes other than the pre-determined shape. Rather, in contrast the present invention, Berkcan '651 describes a current sensor including first, second, and third conductor plates wherein a passage is defined between the first and second conductor plates and wherein the current sensor includes sensor coils for sensing or detecting changes in magnetic flux within a sense region, and Plis describes a meter that includes a vector electricity meter including a voltage sensor and a current sensor that sense voltage and

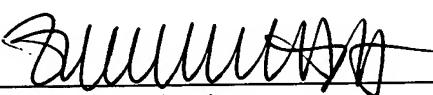
current signals on a power line and input the sensed voltages and currents into a converting means.

For the reasons set forth above, Claim 29 is submitted to be patentable over Plis in view of Berkcan '651.

For the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 11-13, 16-17, 19-24, 26, and 28-29 be withdrawn.

In view of the foregoing remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully requested.

Respectfully Submitted,



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